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**AA 6061****Category** Aluminum Alloy**Class** Wrought**Composition**

Element	Weight %
Al	97.9
Si	0.60
Cu	0.28
Mg	1.0
Cr	0.20

**Mechanical Properties**

Properties		Conditions	
		T (°C)	Treatment
<b>Density</b> ( $\times 1000 \text{ kg/m}^3$ )	2.7	25	
<b>Poisson's Ratio</b>	0.33	25	
<b>Elastic Modulus</b> (GPa)	70-80	25	
<b>Tensile Strength</b> (Mpa)	115		
<b>Yield Strength</b> (Mpa)	48		
<b>Elongation</b> (%)	25	25	O (Alclad) <a href="#">more</a>
<b>Reduction in Area</b> (%)			
<b>Hardness</b> (HB500)	30	25	O <a href="#">more</a>
<b>Shear Strength</b> (MPa)	83	25	O <a href="#">more</a>
<b>Fatigue Strength</b> (MPa)	62	25	O <a href="#">more</a>

**Thermal Properties**

Properties		Conditions	
		T (°C)	Treatment
Thermal Expansion ( $10^{-6}/^{\circ}\text{C}$ )	23.4	20-100	
Thermal Conductivity (W/m-K)	180	25	<a href="#">O more</a>

### Electric Properties

Properties		Conditions	
		T (°C)	Treatment
Electric Resistivity ( $10^{-9}\text{W-m}$ )	37	25	<a href="#">O more</a>

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## AA 5083

**Category** Aluminum Alloy

**Class** Wrought

## Composition

Element	Weight %
Al	94.7
Mn	0.7
Mg	4.4
Cr	0.15

## Mechanical Properties

Properties	Conditions	
	T (°C)	Treatment
<b>Density</b> (×1000 kg/m <sup>3</sup> )	2.66	25
<b>Poisson's Ratio</b>	0.33	25
<b>Elastic Modulus</b> (GPa)	70-80	25
<b>Tensile Strength</b> (Mpa)	305	
<b>Yield Strength</b> (Mpa)	195	
<b>Elongation</b> (%)	25	H112 <a href="#">more</a>
<b>Reduction in Area</b> (%)		
<b>Shear Strength</b> (MPa)	170	25 O
<b>Fatigue Strength</b> (MPa)	160	25 H321

## Thermal Properties

Properties	Conditions	
	T (°C)	Treatment

<b>Thermal Expansion</b> ( $10^{-6}/^{\circ}\text{C}$ )	23.4	20-100	
<b>Thermal Conductivity</b> (W/m-K)	120	25	All

### **Electric Properties**

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<b>Properties</b>	<b>Conditions</b>		
	<b>T (<math>^{\circ}\text{C}</math>)</b>	<b>Treatment</b>	
<b>Electric Resistivity</b> ( $10^{-9}\text{W-m}$ )	60	25	All

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## AA 5052

**Category** Aluminum Alloy

**Class** Wrought

## Composition

**Element** **Weight %**

Al 97.2

Mg 2.5

Cr 0.25

## Mechanical Properties

Properties	Conditions	
	T (°C)	Treatment
<b>Density</b> (×1000.kg/m <sup>3</sup> )	2.68	25
<b>Poisson's Ratio</b>	0.33	25
<b>Elastic Modulus</b> (GPa)	70-80	25
<b>Tensile Strength</b> (Mpa)	230	
<b>Yield Strength</b> (Mpa)	195	
<b>Elongation</b> (%)	12	25 H32 <a href="#">more</a>
<b>Reduction in Area</b> (%)		
<b>Hardness</b> (HB500)	60	25 H32 <a href="#">more</a>
<b>Shear Strength</b> (MPa)	140	25 H32 <a href="#">more</a>
<b>Fatigue Strength</b> (MPa)	115	25 H32 <a href="#">more</a>

## Thermal Properties

Properties	Conditions	
	T (°C)	Treatment

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<b>Thermal Expansion</b> ( $10^{-6}/^{\circ}\text{C}$ )	23.8	20-100	
<b>Thermal Conductivity</b> (W/m-K)	137	25	H38 <a href="#">more</a>

### **Electric Properties**

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<b>Properties</b>	<b>Conditions</b>	
	<b>T (<math>^{\circ}\text{C}</math>)</b>	<b>Treatment</b>
<b>Electric Resistivity</b> ( $10^{-9}\text{W-m}$ )	49	25 H38 <a href="#">more</a>

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## AA 3003

**Category** Aluminum Alloy

**Class** Wrought

## Composition

**Element** **Weight %**

Al 98.6

Cu 0.12

Mn 1.2

## Mechanical Properties

Properties	Conditions		
	T (°C)	Treatment	
<b>Density</b> ( $\times 1000 \text{ kg/m}^3$ )	2.73	25	
<b>Poisson's Ratio</b>	0.33	25	
<b>Elastic Modulus</b> (GPa)	70-80	25	
<b>Tensile Strength</b> (Mpa)	130		
<b>Yield Strength</b> (Mpa)	125		
<b>Elongation</b> (%)	10	25	H12 <a href="#">more</a>
<b>Reduction in Area</b> (%)			
<b>Hardness</b> (HB500)	35	25	H12 <a href="#">more</a>
<b>Shear Strength</b> (MPa)	83	25	H12 <a href="#">more</a>
<b>Fatigue Strength</b> (MPa)	55	25	H12 <a href="#">more</a>

## Thermal Properties

<b>Thermal Expansion</b> ( $10^{-6}/^{\circ}\text{C}$ )	23.2	20-100	
<b>Thermal Conductivity</b> (W/m-K)	162	25	H12 <a href="#">more</a>

### **Electric Properties**

<b>Properties</b>	<b>Conditions</b>		
	<b>T (<math>^{\circ}\text{C}</math>)</b>	<b>Treatment</b>	
<b>Electric Resistivity</b> ( $10^{-9}\text{W-m}$ )	41	25	H12 <a href="#">more</a>

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**AA 1100****Category** Aluminum Alloy**Class** Wrought**Composition****Element** **Weight %**

Al 99.00 (min)

Cu 0.12

**Mechanical Properties**

	Properties	Conditions	
		T (°C)	Treatment
<b>Density</b> ( $\times 1000 \text{ kg/m}^3$ )	2.71	25	
<b>Poisson's Ratio</b>	0.33	25	
<b>Elastic Modulus</b> (GPa)	70-80	25	
<b>Tensile Strength</b> (Mpa)	110		
<b>Yield Strength</b> (Mpa)	105		
<b>Elongation</b> (%)	12	25	H12 <a href="#">more</a>
<b>Reduction in Area</b> (%)			
<b>Hardness</b> (HB500)	28	25	H12 <a href="#">more</a>
<b>Shear Strength</b> (MPa)	69	25	H12 <a href="#">more</a>
<b>Fatigue Strength</b> (MPa)	41	25	H12 <a href="#">more</a>

**Thermal Properties****Properties****Conditions****T (°C)** **Treatment**

<b>Thermal Expansion</b> ( $10^{-6}/^{\circ}\text{C}$ )	23.6	20-100	
<b>Thermal Conductivity</b> (W/m-K)	218	25	H18 <a href="#">more</a>

### **Electric Properties**

<b>Properties</b>	<b>Conditions</b>		
	<b>T (<math>^{\circ}\text{C}</math>)</b>	<b>Treatment</b>	
<b>Electric Resistivity</b> ( $10^{-9}\text{W-m}$ )	30	25	H18 <a href="#">more</a>

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**AA 1050****Category** Aluminum Alloy**Class** Wrought**Composition****Element** **Weight %**

Al 99.50 (min)

**Mechanical Properties**

Properties	Conditions	
	T (°C)	Treatment
<b>Density</b> ( $\times 1000 \text{ kg/m}^3$ )	2.6-2.8	25
<b>Poisson's Ratio</b>	0.33	25
<b>Elastic Modulus</b> (GPa)	70-80	25
<b>Tensile Strength</b> (Mpa)	110	
<b>Yield Strength</b> (Mpa)	105	
<b>Elongation</b> (%)	25	H14 <a href="#">more</a>
<b>Reduction in Area</b> (%)		
<b>Shear Strength</b> (MPa)	69	25 H14 <a href="#">more</a>

**Thermal Properties**

Properties	Conditions	
	T (°C)	Treatment
<b>Thermal Conductivity</b> (W/m-K)	231	25 O

**Electric Properties**

Properties

Conditions

		T (°C)	Treatment
<b>Electric Resistivity</b> ( $10^{-9}\Omega\cdot m$ )	28	25	O

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